

USSR

UDC: 681.325

PARONDZHANOV, V. D., DANILUSHKIN, Yu. V.

"A Permanent Memory Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343306, Division G, filed 11 Jun 70, published 22 Jun 72, pp 175-176

Translation: This Author's Certificate introduces a permanent memory device which contains an address register whose outputs are connected through a decoder and interrogation amplifiers to the input of a storage unit. The output of the storage unit is connected thorough readout amplifiers and a number register to the input of an error decoding module. As a distinguishing feature of the patent, the operating reliability of the device is improved by adding a module for determining check digits. The input of this module is connected to the output of the address register, and the output of the module is connected to the input of the error decoding module.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF THIOPENTAL SODIUM ANESTHESIA ON THE LIVER -U-
AUTHOR--DANILYAK, V.YA.
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(3), 282-4
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANESTHETIC, LIVER, RAT, PROTEIN, RNA, GLYCOGEN, POLYSACCHARIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605004/B03 STEP NO--UR/0390/70/033/003/0282/0284
CIRC ACCESSION NO--AP0139591
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139591

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SODIUM THIOPENTAL (40-80 MG-KG I.P.) GIVEN TO RATS INCREASED TOTAL PROTEINS, SH GROUPS, AND RNA, AND DECREASED GLYCOGEN AND POLYSACCHARIDES IN THE LIVER. THE LIVER RETURNED TO NORMAL 48-72 HR AFTER THE END OF ANESTHESIA. FACILITY: KALININ. MED. INST., KALININ, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--GAMMA RAY SPECTRA OF THE CAPTURE OF RESONANCE NEUTRONS BY RHODIUM,
TANTALUM, AND GOLD -U-
AUTHOR--(05)-BURGOV, N.A., DANILYAN, G.V., YEFIMOV, I.A., KAZACHKOVSKIY,
O.D., PAVLOV, V.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 89-96
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--GAMMA SPECTRUM, RADIATIVE CAPTURE, NEUTRON ABSORPTION,
RESONANCE ABSORPTION, RHODIUM, TANTALUM, GOLD, GAMMA TRANSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/2003 STEP NO--UR/0048/70/034/001/0089/0096
CIRC ACCESSION NO--AP0105077
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105077

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECTRA OF GAMMA RAYS FROM THE CAPTURE OF THE RESONANCE NEUTRONS (0.5 IS SMALLER THAN E SUBN IS SMALLER THAN 7.0 MEV) BY RH, TA, AND AU NUCLEI WERE MEASURED BY THE GLOBAL METHOD. ADVANTAGES AND DISADVANTAGES OF THE SUGGESTED METHOD ARE DISCUSSED. THE ENERGIES AND INTENSITIES OF THE GAMMA TRANSITIONS IN PRIME104 RH, PRIME182 TA, AND PRIME198 AU WERE CALCD. FROM THE EXPTL. DATA. THE ENERGIES AND SPINS OF THE LOWER EXCITED STATES OF THESE NUCLEI ARE PRESENTED AND COMPARED WITH THE ANALOGOUS DATA OF OTHER WORKS. THE NEWLY DISCOVERED STATES ARE INDICATED.

UNCLASSIFIED

DANILYCHEV, I. A.

SP: JPRS 53801
12 AUG 71

UDC 613.693.629.7.048.4:612.223.111:661.183.124

AMINOSILICACELS: REGENERABLE SOLVENTS FOR ABSORBING CARBON
HYDROGEN SULFIDE AND WATER VAPOR

[Article by I. A. Danilychev, V. V. Strelko, T. N. Burushkina, V. K. Cherkasov, B. L. Avdeyeva, and V. M. Melnikov, Moscow, Koshchinskaya 24, February 1969]
(Article JPRS 53801)

One of the principal requirements imposed on atmospheric purification systems in spacecrafts is the capacity for effectively absorbing carbon dioxide exhaled by man. The carbon dioxide adsorbents used are unregenerable chemical adsorbents of the type of different peroxide compounds of alkali metals and regenerable sorbents: synthetic zeolites (N. S. Torocheshnikov, et al.; Smylie and Naumont).

Although a system for air purification based on synthetic zeolites has been well developed, it has a number of serious inadequacies. In particular, the use of zeolites makes it necessary to use preliminary air drying to the dew point: 60-70°; considerable energy expenditures are required for the thermovacuum regeneration of synthetic zeolites.



Fig. 1. Isotherms of CO₂ and H₂S adsorption and desorption on amino-silicagel. 1) isotherm of CO₂ adsorption; 2) isotherm of CO₂ desorption; 3) isotherm of CO₂ adsorption in presence of water vapor; 4) isotherm of CO₂ adsorption in control sample; 5) isotherm of H₂S in presence of water vapor; 6) isotherm of H₂S desorption. a) % by weight; b) p mm Hg.

Life Support System

USSR

UDC: 519.2

DANIYELYAN, E. A.

"Possible Waiting Time in Two Queuing Systems With Priority"

Uch. zap. Yerevan. un-t. Yestestv. n. (Scientific Notes. Yerevan University. Natural Sciences), 1971, No 2(117), pp 10-19 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V45)

Translation: The author considers a single-line queuing system with priorities. The demands of different priority classes form independent Poisson flows. The times for satisfying demands are arbitrarily distributed, each priority class having its own distribution. Consideration is given to both relative and absolute priorities (with complete servicing). Forward and reverse servicing orders are also distinguished. In all cases, the author finds the Laplace-Stieltjes transform of stationary distribution of the virtual waiting time for a demand of any fixed priority class. The result is found by an elegant probabilistic method of sequential imbedding of processes of meeting demands of different priority classes. The proof of certain known formulas is simplified. I. Kovalenko.

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USSR

UDC 535.374

BASOV, N. G., DANILYCHEV, V. A., MOLCHANOV, A. G., POPOV, YU. M., and
KHODKEVICH, D. D., Physics Institute imeni P. N. Lebedev, Academy of Sciences
USSR

"Lasers Using the Luminescence of Self-Trapped Excitons in Condensed Inert
Gases"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 37, No 3, 1973,
pp 494-497

Abstract: The article considers a scheme for the population of the working
levels and conditions for the generation of vacuum UV radiation in condensed
inert gases excited by a fast electron beam. Experimental data are given on
the laser coherence and the efficiency of the conversion of the electron
beam energy to radiative energy in liquid xenon.

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BASOV, N. G., DANILYCHEV, V. A., KERIMOV, O. M., PODSOSONNYY, A. S.,
Physics Institute imeni P. N. Lebedev, Academy of Sciences of the USSR

"Population Inversion in the Active Medium of an Electroionization CO₂
Laser for a Pressure of the Working Mixture of Up to 20 Atmospheres"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol
17, No 3, 5 Feb 73, pp 147-150

Abstract: The authors study the variation, with time, of the inverse
population in the active medium of an electroionization CO₂ laser. It
is experimentally shown that increasing the pressure of the working mixture
up to 20 atmospheres does not lead to any qualitative changes in the
processes of excitation and relaxation of laser levels. The authors thank
N. A. Penin and V. A. Kurbatov for furnishing a receiver with a resolution
of $3 \cdot 10^{-9}$ sec.

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USSR

UDC: 621.375.85

DANILYCHEV, V. A., KERIMOV, O. M., and KOVSH, I. B.

"CO₂ Laser With Electro-Ionization Pulse"

Moscow, Pribury i tekhnika eksperimenta, No 1, 1973, pp 184-185

Abstract: The laser described in this paper is distinguished by its high power and high efficiency. Using a small volume of the operating gas -- carbon dioxide -- radiated power of 1 MW is easily obtained together with a simple method of varying the duration of the radiating pulse between 0.1 and 5 μ sec through a change in pressure of the CO₂. Such lasers can be used for investigating the interaction of powerful radiation with materials. A diagram of the laser chamber in cross section is given and its construction discussed. Since a radiation density of more than 10^4 Mw/cm² can be easily attained with focusing, the device can be used for investigating optical breakdown of gases and transparent dielectrics.

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USSR

UDC 621.375.82

BASOV, N. G., DANILYCHEV, V. A., POPOV, Yu. M.

"Induced Radiation in the Region of the Vacuum Ultraviolet"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 29-34 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1061)

Translation: The possibility of obtaining generation in the vacuum region of the spectrum under excitation of condensed noble gases by an electron beam is discussed. Generation was obtained experimentally in liquid xenon at a wavelength of 1760 Å under excitation by an electron beam with an energy of 800 kev. The threshold density of the current was determined (30-50 a/cm²), and the directionality of the radiation ($\sim 7^\circ$) and the half-width of the generation spectrum (~ 20 Å) were measured. 17 ref. Authors abstract.

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USSR

UDC: 721.373:530.145.6

BASOV, N. G., DANILYCHEV, V. A., POPOV, Yu. M.

"Forced Emission in the Vacuum Ultraviolet Region"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 29-34 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D132)

Translation: The paper discusses the possibility of achieving emission in the vacuum region of the spectrum with excitation of condensed noble gases by an electron beam. Emission is experimentally produced in liquid xenon on a wavelength of 1760 Å. Excitation was by a beam of electrons with an energy of 800 keV. The threshold current density is determined (30-50 A/cm²) and measurements are made of the directivity of the emission (~7°) and the half-width of the emission spectrum (~20 Å). Three illustrations, bibliography of seventeen titles. Résumé.

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Molecular Physics

USSR

UDC 621.378.335

BASOV, N. G., DANILYCHEV, V. A., POPOV, Yu. M.

"Induced Radiation in the Vacuum Ultraviolet Region"

Moscow, Kvantovaya Elektronika, No. 1, 1971, pp 29-34

Abstract: The possibilities of achieving generation in the vacuum region of the spectrum by the excitation of condensed noble gases by an electron beam are discussed. It is noted that the basic difficulty in producing generation in the short-wave portion of the spectrum is the absence of selective and sufficiently effective pumping sources for high energy levels and breakdown into a large number of radiation oscillators, which increases in proportion to the square of the frequency and leads to a decrease in the radiation lifetime. Other difficulties are wide radiation bands and fast relaxations of excited states. In an experiment with liquid xenon, generation was obtained at a wavelength of 1760 Å through excitation by an electron beam with an energy of 800 kev. The threshold density of the current was 30-50 a/cm², the half-width of the generation spectrum was ~20 Å, and the direction of the radiation was ~7°. Intense radiation of liquid xenon was also observed in the visible and near ultraviolet regions of the spectrum

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BASOV, N. G., et al, Kvantovaya elektronika, No. 1, 1971, pp 29-34

under the action of a powerful electron beam. Radiation in this range is attributed to transitions between upper excited states of the atoms and xenon molecules and to recombination through structural defects arising in the homogeneous liquid close to the point of the phase transition under the action of fast electrons. The radiation power in the vacuum region of the spectrum was of the order of 10^3 w. It is expected that this can be raised considerably through the application of a better geometry, high quality mirrors, and careful cleaning of the xenon. The authors feel that the excitation of condensed noble gases by a powerful electron beam opens up great possibilities for developing sources of coherent radiation in the vacuum region of the spectrum.

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Lasers and Masers

USSR

UDC 621.378.33

BASOV, N. G., BELENOV, E. M., DANILYCHEV, V. A., and SUCHKOV, A. F.

"Pulsed CO₂-Laser With High Pressure of the Gas Mixture"

Moscow, Kvantovaya Elektronika, No 3, 1971, pp 121-122

Abstract: Short powerful pulses of coherent light are required for solving any number of physical problems. However, solid-state lasers are ordinarily used as the sources of powerful pulses. Theoretically, such pulses can be produced from gas lasers as well if the concentration of active particles in the gas is close to their concentration in solid-state lasers. It is certainly interesting to design gas lasers that operate with a high working gas pressure. Typical powerful CO₂-lasers operate at pressures of about 50 torr, and recently such lasers have been designed for operation at working mixture pressures up to 1 atm. However, the method of exciting gas lasers can not ensure uniformity in the active medium and is only slightly effective in the region of higher pressures. However, by raising the pressure to 1 atm, the authors were able to observe the spontaneous synchronization of the modes and to produce powerful ultrashort light pulses. The difficulties involved in exciting a gas-discharge laser were overcome by using an external source for ionizing the gas. The electric discharge was activated in a mixture of CO₂+N₂+H₂O+He

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BASOV, N. G., et al., Kvantovaya Elektronika, No 3, 1971, pp 121-122

placed between two flat electrodes. By further increasing the gas pressure, one can reduce the duration of the generation pulse and simultaneously increase the energy. Thus, with large pressures the self-synchronization of the modes may ensure the generation of ultrashort radiation pulses with a duration of about 10^{-11} seconds. The article contains 1 figure and 5 bibliographic entries.

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BASOV, N. G., BELENOV, E. M., DANILYCHEV, V. A., KERIMOV, O. M., KOVSH, I. B.,
and SUCHKOV, A. F., Physics Institute imeni P. N. Lebedev, Academy of Sciences
USSR

"Gas Lasers at High Pressures"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14,
No 7, 5 Oct 71, pp 421-426

Abstract: A gas laser, operating at pressures of tens of atmospheres and high-power, short-duration pulses is described. Its active part is excited by electrons from an ionizing radiation source, accelerated further by an electric field. Essential problems to be solved are: 1) mechanism of the introduction of energy, and 2) conditions of stability of operation not perturbed by quenching processes.

1) Power in the active part of the laser may be divided into two components: one due to the electron current, and another - to both ions and electrons. It was found that in normal operation, the former is several orders of magnitude larger than the latter. A set of partial differential equations is given, the solution of which establishes conditions for the avalanche gas ionization. It was also found that in normal operation the

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BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 7, 5 Oct 71, pp 421-426

potential gradient along the discharge sector, including the cathode drop, was constant. Typical parameters of laser operation are given: with a pulse length of 2×10^{-8} sec, electron particle density 10^{15} cm^{-3} , the discharge specific energy is 3 to 4 joule cm^{-3} .

2) With the potential being larger than its breakdown value, volume discharge is stable during the spark generation period. Cases were examined for the potential difference being below that value. As with an increase of current, the temperature increases, leading to a decrease of pressure, and the breakdown conditions are reached. The dynamics of this type of perturbation is described by three partial differential equations, and computation of the energy needed to produce a discharge with the initial potential difference half the critical value is performed as an illustration. This type of relationship is used as a criterion of stability. Graphs are presented giving threshold voltage as a function of pressure for mixtures of $\text{CO}_2:\text{N}_2$ and of $\text{CO}_2:\text{N}_2:\text{He}$.

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BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 7, 5 Oct 71, pp 421-426

3) An experiment was performed with a molecular laser using CO_2 at 25 atmospheres, with electron bunches as triggers. It was found that quenching collisions produced little effect upon the population inversion in CO_2 at high pressure. It was found, however, that with an increase of pressure, the breakdown voltage increased across the discharge sector, and the specific energy input increased too. Increased collision frequency, accompanying the increase of pressure, reduces the generation pulse length.

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BASOV, N. G., DANILYCHEV, V. A., POPOV, Yu. M., and KHODKEVICH, D. D.,
Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Laser in the Vacuum Region of the Spectrum from the Excitation of Liquid Xenon by an Electron Beam"

Moscow, Pis'ma Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 12,
No. 10, 20 Nov 70, pp 473-474

Abstract: Experiments to obtain generation in liquid xenon in the vacuum region of the spectrum under excitation by a powerful beam of fast electrons (electron current density up to $200 \text{ amp} \cdot \text{cm}^{-2}$) are described. The use of condensed inert elements (Xe, Kr, Ar, Ne, He) to generate in the region of the vacuum ultraviolet was proposed and discussed earlier by the authors, and the development of a laser of condensed inert gases was facilitated by the possibility of achieving a four-level scheme. In previous experiments on the excitation of condensed inert gases and their mixtures by fast electrons the luminescence spectra were observed, the effectiveness of luminescence was evaluated, and weak induced radiation of liquid xenon at the wavelength $\sim 1760 \text{ \AA}$ was observed. These experiments were made without mirrors and at a low excitation density (maximum electron current density $1/2$

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BASOV, N. G., et al, Pis'ma Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 12, No 10, 20 Nov 70, pp 473-474

(maximum electron current density was $25 \text{ amp}\cdot\text{cm}^{-2}$). In this study the radiation spectrum of liquid xenon was measured for two values of the pumping current density: $150 \text{ amp}\cdot\text{cm}^{-2}$ and $70 \text{ amp}\cdot\text{cm}^{-2}$. At electron current densities of more than $100 \text{ amp}\cdot\text{cm}^{-2}$ the intensity of the 1760 \AA line strongly increases and the half-width of the line reaches 20 \AA , which is close to the resolution of the spectrometer, while the half-width of this line at low excitation density was 80 \AA . Semitransparent aluminum mirrors deposited on a substrate of lithium fluoride and coated with a protective layer of magnesium fluoride were used as mirrors. It is noted that the application of other inert gases in the condensed state should permit induced radiation over a wide range of wavelengths up to 800 \AA .

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USSR

UDC: 62-50

DANILYUK, A. A., CHINAYEV, P. I.

"On the Problem of Invariance of the Motion of Associated Bodies"

Tr. 3-go Vses. soveshchaniya po teorii invariantnosti i yeye primeneniyu v sistemakh avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the Third All-Union Conference on the Theory of Invariance and its Application to Automatic Control Systems. Vol. 2. Use of Invariant Automatic Control Systems), Moscow, "Nauka", 1970, pp 138-144 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9A149)

Translation: The paper deals with the possibility of achieving conditions of invariance with regard to the physical realizability for cases of joint motion of associated bodies which: a) partake of translational motion along a trajectory described by an approximately analytical function (an arbitrary segment of the profile of a mountainous terrain), and b) partake of rotational motion. Authors' abstract.

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Functional Analysis

USSR

DANIYUK, Corresponding Member of the Ukrainian Academy of Sciences I. I.; OLEYNIK, M. V. (Institute of Applied Mathematics and Mekhanics, Ukrainian Academy of Sciences)

"Uniqueness of the Solution of a Certain Nonlinear Problem with a Free Boundary"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya A - Fizyko-Tekhnichni ta Matematychni Nauky, Mar 72, pp 202-205

Abstract: The authors consider the problem of determining a doubly-connected region $G_{r,\nu}$ with one unknown boundary component ν ("free boundary") such that the harmonic stream function ψ of the region $G_{r,\nu}$ satisfies, on ν , the "generalized Bernoulli condition" $|\text{grad } \psi| = Q$, where Q is a function specified beforehand. It is always possible to assume that r is the segment $0 \leq x \leq 2\pi$, $y = 0$, and $G_{r,\nu}$ is a portion of the semistrip $0 \leq x \leq 2\pi$, $y > 0$, with identified vertical lines $x = 0$, $x = 2\pi$. The basic assertion is made that under the condition $Q_y(x, y) \geq 0$ this problem has not

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DANILYUK et al, Dopovidi Akademii Nauk Ukrains'koi RSR: Seriya
A - Fizyko-Tekhnichni ta Matematychni Nauky, Mar 72, pp 202-205

more than one solution in the class of curves γ , expressed
explicitly by $y = f(x)$.

There are two bibliographic references.

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USSR

BAZALIY, B. V., and DANILYUK, I. I.

"On the Stationary Points of a Functional Corresponding to a Boundary Value Problem With a Free Boundary"

Kiev, Matematicheskaya Fizika, No 8, 1970, pp 3-14

Abstract: Let Γ be some simple, sufficiently smooth curve on the plane $z = x + iy$ and let there be defined in domain G , bounded by Γ , the real-valued sufficiently smooth function $Q(x, y; v)$, where $v = (v_1, v_2, \dots, v_n)$ is a certain aggregate of numerical parameters ($v \in R^n$). $G_\gamma \subset G$ denotes a doubly connected curvilinear ring bounded by the fixed line Γ and some sufficiently smooth unknown line γ ("free boundary"), and under consideration is the family of functionals

$$I(\psi, \gamma; v) = \iint_{G_\gamma} |\psi_x^2 + \psi_y^2 + Q^2(x, y; v)| dx dy, \quad (1)$$

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USSR

BAZALIY, B. V., and DANILYUK, I. I., Matematicheskaya Fizika, No 8, 1970, pp 3-14

defined on the pairs $(\psi(x,y), \gamma)$, where $\psi(x,y)$ is a function sufficiently smooth in G_γ , equal to zero on Γ and one on γ . Given a certain v let the pair (ψ, γ) furnish functional (1) with a stationary value and have classical differential properties sufficient for the use of Green's formula. Using formulas for calculating the first variation of the functional defined by an integral with a variable domain of integration, it can be shown that

$$\delta I(\psi, \gamma; v; \delta\psi, \delta\gamma) = - \iint_{G_\gamma} 2(\psi_{xx} + \psi_{yy}) \delta\psi dx dy - \int_\gamma \{ |\nabla\psi|^2 - Q^2(x, y; v) \} \delta\gamma ds. \quad (2)$$

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BAZALIY, B. V., and DANILYUK, I. I., Matematicheskaya Fizika, No 8, 1970, pp 3-14

Since on stationary points variation (2) must vanish, due to arbitrariness in the selection of $\delta\psi$, and $\overline{\delta z} = (\delta x, \delta y)$, the function ψ is harmonic and on the sought curve γ satisfies the generalized Bernoulli law

$$|\text{grad } \psi|^2 = Q^2(x, y; v).$$

The article considers an isoperimetric problem in which it is necessary to find all critical points for functional (1) on the set of all admissible pairs for which the area of ring G_γ is the given quantity c^2 : i.e.,

$$I_1(\gamma) \equiv \iint_{G_\gamma} dx dy - c^2 = 0. \quad (3)$$

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BAZALIY, B. V., and DANILYUK, I. I., Matematicheskaya Fizika, No 8, 1970, pp 3-14

An earlier article by DANILYUK proved the existence of the classical pair (ψ, γ) such that functional (1) reaches its greatest lower bound on it and thus proved an existence theorem for a boundary value problem with conditions 1-3. No constraints were imposed on the functional structure of $Q(x, y; \nu)$. The present article considers the critical points of functional (1) and their branching on the assumption that $Q(x, y; \nu) = q(\rho; \nu, \rho^2 = x^2 + y^2)$. In addition, it is assumed that the curve Γ is a circle $|z| = 1$; this condition can always be satisfied by virtue of conformal invariance of Dirichlet's integral.

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USSR

UDC 519.3.517.95.32

DANILYUK, I. I., Corresponding Member Academy of Sciences Ukrainian SSR; Donetsk Computing Center, Academy of Sciences Ukrainian SSR

"On the Antigradient Method in the Theory of a Class of Functionals"

Kiev, Dopovidi Akademii Nauk Ukrainiskoi RSR, Seriya A, Fiziko-Tekhnichni ta Matematichni Nauki (Proceedings of the Academy of Sciences Ukrainian RSR, Series A, Physical-Technical and Mathematical Sciences), No 10, October 1970, pp 876-879

Abstract: This is a continuation of a study of certain functional integrals with a varying region of integration. Vector equations are derived that represent the continuous gradient of the functional

$$I_1(z, q) = -\frac{2\pi}{\ln q} + \iint_{G_0} Q^1(z) \left| \frac{dz(\tau)}{d\tau} \right|^2 d\xi d\eta, \quad (2)$$

in points (z, p) , where $p \in (0, 1)$, $z(\tau) \in M_p$, and $z'(\tau) \in H_2^{(1)}(G_p)$. The Cauchy problem is examined on the manifold M , and a unique solution $(z = z(t, z_0)(\tau))$ is found for every $z_0 \in M_p$. The solution tends weakly toward

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USSR

DANILYUK, I. I., Dopovidi Akademii Nauk Ukrainskoi RSR, Seriya A, Fiziko-Tekhnichni ta Matematichni Nauki, No 10, October 1970, p 876-879

the critical point on M_p of functional (2). Conditions are given for nondegeneracy of the critical point that are more general than those of Palais-Smale. Reference is given to a linear variational system for which the critical point z of functional (2) is nondegenerate and isolated. Expansions are given for solving the Cauchy problem. Orig. art. has 5 refs.

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USSR

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UDC 517.95:32

BAZALIY, B. V. and DANILYUK, I. I., Corresponding Member of the Academy of Sciences UkrSSR

"Branching of the Critical Points of Functionals Determined by Integrals with Variable Region of Integration"

Kiev, Dopovidi Akademiyi Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tekhichni ta matematychni nauky, No 1, Jan 70, pp 3-7

Abstract: Suppose that Γ is a circle $|z| = 1$, $\rho_0 = \sqrt{1 - c^2/\pi} > 0$, where $c^2 < \pi$ is given; $q^2 \equiv q^2(\rho, \gamma)$, where $\rho_0 = x^2 + y^2$; and $\gamma = \gamma_1, \dots, \gamma_n$ is a system of real parameters. Let (ρ_0, γ_0) satisfy

$$\frac{1}{\rho_0^2 \ln^2 \rho_0} + \frac{\rho_0}{m+1} \frac{\rho_0^m - \rho_0^{-m}}{\rho_0^m + \frac{m-1}{m+1} \rho_0^{-m}} \frac{\partial}{\partial \rho} q^2(\rho; \gamma_0) \Big|_{\rho=\rho_0} = 0.$$

for some $m \geq 1$; $\lambda = \lambda_m$ be determined by

$$\lambda = \lambda_m \equiv q^4(\rho_0; \gamma_0) + \frac{\rho_0}{m+1} \frac{\rho_0^m - \rho_0^{-m}}{\rho_0^m + \frac{m-1}{m+1} \rho_0^{-m}} \frac{\partial}{\partial \rho} q^2(\rho; \gamma_0) \Big|_{\rho=\rho_0};$$

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USSR

BAZALIY, B. V., et al., Dopovidi Akademiyi Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tekhichni ta matematychni nauky, No 1, Jan 70, pp 3-7

and $q(\rho; \nu)$ be analytic in some neighborhood of the point (ρ_0, ν_0) . Finally, let quantities

$$c_k = \frac{\pi}{k} \left(\frac{q_0^k}{1 - q_0^{2k}} \right)^2 \frac{\partial}{\partial \rho} [(q^2(\rho; \nu_0) - \lambda) q^2(\rho - \rho^* - q^4)^2] \Big|_{\rho=\rho_0}^{q=q_0}, k = 1, 2, \dots$$

for $k \neq m$ and derivative

$$\begin{aligned} \frac{\partial f_i}{\partial \mu_i} \Big|_{\mu=0} &= \left[-2\pi \left| \frac{2\pi q_0}{c_0} \frac{\partial}{\partial \nu_i} q^2(\rho_0; \nu) - \frac{1}{c_0} \frac{\partial^3 J}{\partial \rho \partial a^2} \frac{\partial \xi_j^2}{\partial \mu_i} \right| + \right. \\ &\quad \left. + 2\pi(m+1) \left(\frac{q_0^m}{1 - q_0^{2m}} \right)^2 q_0^2 \left(q_0^m + \frac{m-1}{m+1} q_0^{-m} \right) \frac{\partial \xi_0^2}{\partial \mu_i} \right] \Big|_{\rho=\rho_0}^{\mu=0}, \end{aligned}$$

for $i = 1$ be non-zero and for some $\mu = \nu - \nu_0$ the conditions

$$L_{20} \neq 0, \quad -L_{11}/L_{20} > 0,$$

be satisfied. Then the functional (1), in some neighborhood of the "trivial"

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USSR

BAZALIY, B. V., et al., Dopovidi Akademiyi Nauk Ukrayinskoyi RSR, Seriya A, Fizyko-tekhnichni ta matematychni nauky, No 1, Jan 70, pp 3-7

critical point (ψ_0, γ_0) , $\psi_0 = \ln |z| / \ln \rho_0$, $\gamma: |z| = \rho_0$, has two $(n-1)$ -parametric families of the critical points (ψ, γ) for which the annulus G_γ has an area equal to c^2 .

$$I(\psi, \gamma; \lambda, c) = \int_{G_\gamma} (\psi_x^2 + \psi_y^2 + Q^2(x, y) - \lambda) dx dy + \lambda c^2; \quad (1)$$

1/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--BRANCHING OF THE CRITICAL POINTS OF FUNCTIONALS DETERMINED BY
INTEGRALS WITH VARIABLE REGION OF INTEGRATION -U-
AUTHOR-(02)-BAZALIY, B.V., DANILYUK, I.I.

COUNTRY OF INFO--USSR

SOURCE--KIEV. KOPOVIDI AKADEMIYI NAUK UKRAYINSKOYI RSR, SERIYA A,
FIZYKO-TEKHNICHNI TA MATEMATYCHNI NAUKY, NO 1, JAN 70, PP 3-7
DATE PUBLISHED----JAN70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--ANALYTIC FUNCTION, FUNCTIONAL EQUATION, INTEGRAL FUNCTION,
CIRCLE GEOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1980

STEP NO--UR/0441/70/000/001/0003/0007

CIRC ACCESSION NO--AT0133822

UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133822

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRANCHING OF THE CRITICAL POINTS
OF FUNCTIONALS DETERMINED BY INTEGRALS WITH VARIABLE REGION OF
INTEGRATION EQUATIONS AND SOLUTIONS SHOWN ON MICROFICHE.

UNCLASSIFIED

USSR

UDC 669.14.018.584.001.6

BABAKOV, A. A., LEVIN, F. L., KONDRAT'YEV, A. I., GOLOVIN, A. I., KUL'KOVA, M. N., DANILYUK, YE. B., PEVZNER, A. YE., OPANEVICH, G. A., and KRAVCHENKO, I. D.

"Experience in Production of Sheet From 25Kh17N4G15AF2 Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 124-131

Translation: The first experimental group of 40-mm sheets of type 25Kh17N4G15AF2 high-strength nonmagnetic steel has been manufactured. Based on studies of the specifics of the production of the steel during various stages of the technological process and study of the properties of the metal produced, practical recommendations are given for the production of sheet. 3 figures; 3 tables.

1/1

USSR

UDC 546.821.541.135

AVDEYEV, A. L., DANILYUK, YU. L., and ROZENBERG, L. A.

"Mechanism of Electrical Aging of Titanium Dioxide"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8,
No 2, 1972, pp 263-267

Abstract: Ionic processes were studied during electrical aging of titanium dioxide. During electrical aging, oxygen is liberated from the specimen, and the primary influence on the change in electrical characteristics is that of the area of increased nonstoichiometry near the cathode. The regularities of aging titanium dioxide are studied on the basis of a model of oxygen vacancies unevenly distributed and redistributed through the specimen under the influence of the electrical field. The duration of the first stage of aging is determined by the time of accumulation of a concentration of oxygen vacancies near the cathode sufficient for the beginning of injection. The rise in current during the second and fourth stages is related to the increase in concentration of oxygen vacancies near the cathode. Redistribution by the end of the second stage of decreasing voltage along the length of the specimen results in a limitation of current in the third stage as a result of interruption of the increase in the concentration of oxygen vacancies near the cathode.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF HIGHER ALCOHOLS IN RUSSIAN LEATHER PRODUCTION -U-

AUTHOR-(03)-DANISH, L.V., MIKHANOSHA, YE.S., KOTOV, M.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. LEGK. PROM. 1970, (2), 68-9

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALCOHOL, LEATHER, INDUSTRIAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0951

STEP NO--UR/0323/70/000/002/0068/0069

CIRC ACCESSION NO--AP0124611

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124611

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN INDUSTRIAL TRIALS ON 1000 KG BATCHES, THE NORMAL FATTING MIXT. CONTG. SYNTHETIC FAT 60, FISH OIL 20, TANNING PASTE 15, TAR 5PERCENT, WAS REPLACED BY A MIXT. OF 5:1 HIGHER ALC. KEROSENE. USAGE IN BOTH CASES WAS 20PERCENT OF THE SQUEEZED WT. OF LEATHER, AND TIME OF TREATMENT 2 HR AT 55-60DEGREES. THE EXPTL. BATCHES, CONTG. HIGHER ALCS., WERE SIMILAR TO CONTROL BATCHES ACCORDING TO CHEM. ANAL. AND PHYSICOMECH. TESTS. THEIR WATER PERMEABILITY WAS REDUCED TO HALF THAT OF THE CONTROL BATCHES, AND DRYING TIME, AFTER FATTING, WAS REDUCED BY 25PERCENT. FACILITY: KIEV. TEKHNOL. INST. LEGK. PROM., KIEV, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SOURCES OF ODORS IN RUSSIAN LEATHER PRODUCTION. 2. USE OF PETROLEUM
REFINING BY PRODUCTS FOR LIMING CATTLE HIDES -U-
AUTHOR--(05)--CANISH, L.V., KOTOV, M.P., DUSHIN, B.M., ROMAN, A.S.,
TSIMBALENKO, A.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. LEGK. PROM. 1970, (1), 83-5
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PETROLEUM PRODUCT, LEATHER, TECHNICAL STANDARD, SULFUR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2000/0947

STEP NO--UR/0323/70/000/001/0083/0085

CIRC ACCESSION NO--AP0124607

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124607

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY REPLACEMENT DURING LIMING OF CATTLE HIDES OF NA SUB2 S WITH A S CONTG. WASTE PRODUCT OF PETROLEUM REFINING, AND BY REDN. OF THE TIME OF ROTATION OF THE HIDES IN THE DRUM DURING SOAKING AND LIMING, THE AMT. OF ODORIFEROUS LEATHER WAS REDUCED FROM 28.5 TO 5.8PERCENT. THE TOTAL TIME OF LIMING WAS REDUCED FORM 44 TO 31 HR. THE RESULTANT LEATHER, AFTER TANNING, MET THE REQUIREMENTS OF THE ALL UNION STATE STD. FACILITY: KIEV. TAKHNOL. INST. LEKG. PROM., KIEV, USSR.

UNCLASSIFIED

USSR

VALOV, P.M., DANISHEVSKIY, A.M., KASTAL'SKIY, A.A., RYVKIN, B.S., RYVKIN, S.M., YAROSHETSKIY, I.D., Physicotechnical Institute imeni A.F. Ioffe, Academy of Sciences, USSR; Institute of Semiconductors, Academy of Sciences, USSR

"Photon Drag of Electrons During Intraband Light Absorption by Free Current Carriers in Semiconductors"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 12, 1970, pp 1919-1925

Abstract: Photon drag of electrons during indirect intraband absorption of light in semiconductors has been detected experimentally. This effect is due to an asymmetry of the distribution function originating as a result of the momentum of the incident photon flux. The effect was recorded during the absorption of radiation from a CO₂ laser in electronic germanium. The experimental results are in satisfactory agreement with the theory developed in a cited source. 2 figures, 9 bibliographic entries.

1/1

Acc. Nr: AP0043677

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 544-550

D

PHOTON DRAG OF FREE CARRIERS IN DIRECT INTERBAND
TRANSITIONS IN SEMICONDUCTORS

Danishchevskiy, A. M.; Katal'skiy, A. A.;
Yaroshetskiy, I. D.; Ryvkin, S. M.

Drag of free carriers by light in direct optical transitions is predicted and experimentally observed. The experiment was carried out in hole germanium by means of a CO₂ Q-switched laser with a peak power of about 2 kW. With variation of the temperature from room to nitrogen temperature inversion of the drag current sign is found to occur. The regularities observed are in good agreement with the theory developed in ref [4].

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REEL/FRA
19770081

DI

USSR

UDC 519.2

DANIYEL'YAN E. A.

"Priority Problems in Queueing Systems with One Servicing Device"

Prioritetnyye zadachi v sistemakh obsluzhivaniya odnim priborom (Priority Problems in Queueing Systems with One Servicing Device), Moscow University, 1971, Knizh. letopis' Press, 144 pp, ill., 19 k. 1971, No 28, 47 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V33K)

No abstract

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USSR

DANIYELYAN, E. A., DIMITROV, B. N.

"Servicing with Changing Priorities and "Warm Up Period"

Uch. Zap. Yerevan. Un-t Estesv. n. [Scientific Writings of Yerevan University, Natural Sciences], No 1(116), 1971, pp 3-10 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V74 from the Foreword).

Translation: The following queueing system is studied. One servicing device receives r independent Poisson streams of requests L_1, \dots, L_r with parameters a_1, \dots, a_r respectively. If a call from flow L_i arrives at a system which is free, before servicing begins, type i "warm up" must occur, i.e., the device prepares for servicing of the call during random time τ_i , where $P\{\tau_i < t\} = G_i(t)$, $i = 1, \dots, r$. The continuous operating time of a device following type i "warm up" is called the type i busy period. Calls of flow L_i , serviced during the type i busy period have relative priority over calls of the other types, while calls from flow L_k have relative priority during the type i busy period over calls of flow L_j where $k < j$, $j \neq i$.

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USSR.

DANIYELYAN, E. A., DIMITROV, B. N., Uch. Zap. Yerevan. Un-t. Estesv. n., No 1(116), 1971, pp 3-10.

The order of servicing of calls of the same flow is direct. The duration of servicing of calls, as well as the duration of "warm up" are independent, random quantities. The duration of servicing of calls from flow L_j during a type i busy period has distribution $B_j^i(t)$, $i, j = 1, \dots, r$. Certain characteristics of this queueing system are studied.

2/2

- 3 -

USSR

UDC 519.217

DANIYELIAN, E. A., DILITROV, B. N.

"Servicing with Priorities and Warmup: Inverse Servicing Order"

Mat. Vopr. Upr. Proiz-vom. Vyp. 2 [Mathematical Problems of Production Control, No. 2 -- Collection of Works], Moscow, Moscow University Press, 1970, pp 165-178
(Translated from Referativnyy Zhurnal Kibernetika, No 4, April, 1971, Abstract No. 4 V50 by Yu. Gromak).

Translation: A one-line queueing system is studied, which receives r independent Poisson flows. If a request in the i th flow reaches a free system, then before servicing is begun, the system is prepared for servicing for a certain random time $\tau_i (i=1, r)$. After preparation of type i , a request of the i th flow has priority over requests in other flows; if no request is present in the i th flow, requests from the flow with the lowest number are serviced in inverse order. The servicing time of requests and time of preparation of the system for servicing are independent random quantities with arbitrary distribution functions. This work produces the distribution function of the waiting time for the beginning of servicing of a request of the i th flow in the stable mode, as well as certain other stable probabilities.

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USSR

UDC 519.217

DIMITROV, B. N., DANIYELIAN, E. A.

"Several Limit Theorems in the Theory of Reliability and Queueing Theory"

Mat. Vopr. Upr. Proiz-vom. Vyp. 2 [Mathematical Problems of Production Control, No. 2 -- Collection of Works], Moscow, Moscow University Press, 1970, pp 179-183.
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4, VSI by Yu. Gromak).

Translation: Suppose there is an unreliable element characterized by times of operation and repair with distribution functions $G(t)$ and $F(t)$ respectively. The element is subjected to certain "calamities," the flow of which is a Poisson flow with parameter λ . This article studies the limiting behavior of the quantity λh_ζ (as $\lambda \rightarrow 0$), where h_ζ is the summary time of operation of the element up to random moment ζ of arrival of the first "calamity." The results produced allow determination of the limiting distribution of quantity $\lambda \tau$ (as $\lambda \rightarrow 0$), where τ is the time to the first failure of the system with one reserve element, the operating time of which is exponentially distributed with parameter λ .

1/1

Petroleum Processing Technology

USSR

UDC 665.635:665.644,2:/661,715.7:001:665,4+621.436

INDYUKOV, N. M., and ~~DANIYELIAN~~ DANIYELIAN, M. K.

"Production of Naphthalene and Marine Diesel Fuel From Gas Oils of Catalytic Cracking"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 3 (69), 1970, pp 36-39

Abstract: The authors investigated simultaneous production of naphthalene and marine diesel fuel from gas oils of catalytic cracking. The initial raw materials were light and heavy gas oils of catalytic cracking, mixtures of these oils and fractions isolated from a mixture. The content of aromatic hydrocarbons was: 33.33 vol.% in the light gas oil, 40.00 vol.% in the heavy gas oil, and 35.0 vol.% in the gas oil mixture. The basic indices of the process of naphthalene production were determined both with respect to catalytic and with respect to thermal hydrodealkylation of the 240-300° fraction of the aromatic concentrate. The naphthalene yield was 40.5 and 51.7% of the aromatic concentrate respectively. Marine diesel fuel produced from the refined product of the low-boiling-to-300° fraction and the residue of gas oils of catalytic cracking with a boiling point above 300° satisfies all requirements of State Standards (GOST).

1/1

Acc. Nr: AP0101143

Ref. Code: URD 297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 3, pp 279-281

ANTIBIOTICS IN BEES, THEIR LARVAE AND HONEY

Shakaryan, G. A.; Daniyelyan, S. G.; Akopyan, Z. M.

Microbiology Chair of Erevan Zooveterinary Institute, Experiment Station for
Epiculture

Data on the levels and retention time of neomycin and pasomycin in bees and their larvae, as well as streptomycin, pasomycin, neomycin and monomycin in bee honey are presented. It was found that pasomycin and neomycin in bees and their larvae are retained for more than 48—72 and 12—24 hours respectively. Streptomycin, pasomycin and neomycin are retained in bee honey for more than 210 days and monomycin is retained for more than 60 days. Therefore, in the treatment of bee pest pasomycin should be used at an interval of 2 to 3 days and neomycin should be used every day. It is recommended to treat the bee pest in early spring before the beginning of honey plant. Wide use of antibiotics in bee-keeping and their consequent penetration to honey and prolong retention there may have an undesirable effect on human beings in case of its systematic use.

REEL/FRAME
19850769

Heat Treatment

3

USSR

UDC 621.791.856:669.28

ALEKSEYENKO, G. N., NERODENKO, M. M. (Electric Welding Institute imeni YE. O. PATON, Academy of Sciences Ukrainian SSR), BIRYUKOVA, T. A., ~~DANIYELYAN, T. A.~~, MAL'TSEV, M. V., FREZE, N. I., and SHCHUKIN, A. A. (Moscow)

"Effect of Heat Treating on the Properties of Molybdenum-Carbon-Nickel Alloys and Their Weld Joints"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

Abstract: The study deals with the properties of intermediate products from TSM-3 structural molybdenum alloy (0.05-0.10% wt % C and 0.01-0.10% Ni) following annealing. The specimens were tensile-tested at room temperature, at $2.5 \cdot 10^{-3} \text{ sec}^{-1}$ deformation rates and were arc-welded in a controlled inert-gas atmosphere. The specimens were pre-annealed for 1 hour in vacuum (10^{-5} mm Hg) at 800, 1100, 1200, 1300, 1400, 1500, 1600, and 1700°C. Metallographic examinations indicate that recrystallization begins at 1200°C and is completed at 1400°C. Maximum plasticity was shown by specimens with a completely recrystallized structure. Pre-annealing appears to upgrade the weld quality. Nickel tends to concentrate along the grain boundaries and not only hinders carbon diffusion, but also

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USSR

ALEKSEYENKO, G. N., et al, Avtomaticheskaya svarka, No 4, Apr 72, pp 47-49

promotes strengthening of the metal bond in the boundary layers owing to the localized increase of electron concentration. This strengthening of grain boundaries by nickel appears to be the determining factor in raising the plasticity of TSM-3 alloy in recrystallized state. (2 illustrations, 3 tables, 4 bibliographic references)

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USSR

UDC: 519.2

DANIYELIAN, Ye. A., DIMITROV, B. N.

"Concerning the M/G/1 Queue With Waiting and Two Types of Refusals"

Math balkan., 1972, 2, pp 21-37 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V75 by I. Kovalenko)

Translation: The paper considers the M/G/1 queue with waiting which may be out of service in intervals when the server is unoccupied. (Two types of refusals are distinguished; each has its own corresponding distribution of recovery time). An embedded Markov chain is studied which determines the state of the queue at 0-instants, i. e. at the times of beginning or ending of service and recoveries of the server; $p(m, n, x, t)dx$ denotes the probability that there are m customers in the queue at time t , n customers have been served up to time t , and a time which belongs to the interval $(x, x+dx)$ has elapsed since the last 0-instant. The paper gives an analytical method of determining the function

$$P^*(y, z, x, s) = \sum_{m, n} y^m z^n \int_0^{\infty} e^{-st} p(m, n, x, t) dt.$$

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USSR

DANIYELYAN, Ye. A., DIMITROV, B. N., Math. balkan., 1972, 2, pp 21-37

in terms of which the main stationary and nonstationary characteristics of the queue are expressed. Application is found for queues with reverse order-of-arrival service and queues with priorities.

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- 2 -

USSR

UDC 621.38.61

DANKO, M. I.

"Membrane Potential of Liver During the Effect of Neodymium Laser Radiation"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3
(Use of Lasers in Contemporary Technology and Medicine. Parts 2-3 -- Collec-
tion of Works), Leningrad, 1971, pp 85-86 (from RZh-Elektronika i yeyye
primeneniye, No 2, Feb 72, Abstract No 2A513)

Translation: The cytoplasmic membrane plays an exceptional role in the activity of cells. Investigation were conducted on membrane potentials of the liver of white randombred rats during the effect of neodymium laser radiation with a pulse energy of 250 joules. The resting potential was measured with the aid of glass microelectrodes filled with a KCl solution. The microelectrodes were connected with a KP and were introduced into the cell with the aid of a micromanipulator. The signal was amplified by a dc amplifier and entered the input of an oscillograph. The membrane potential of cells of a normal liver proved to be 43.2 plus or minus 0.45 mv. The membrane potentials were measured in the zone of injury by laser radiation. In the zone of coagulation necrosis, the membrane potentials were equal to 0. In the first and third 24-hour periods after irradiation, layers of cells were detected between the zone of coagula-
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USSR

DNAKO, M. I., V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3, Leningrad, 1971, pp 85-86

tion necrosis and intact tissue, the membrane potential of which was 8-10 times smaller than the potential of the intact tissues. Two weeks after irradiation the membrane potential in the zone of injury differed little from the potential of the nonirradiated cells. Summary.

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USSR

UDC 577.3

VOLKOV, Yu. M., SYDORYK, E. P., and DANKO, M. Y., Chair of Biophysics, Kiev University, and Laboratory of Biophysics of Tumors, Kiev Institute of Experimental and Clinical Oncology

"Effect of Laser Radiation on the Electrical Parameters of Fresh Tissue"

Kiev, Fiziologicheskii Zhurnal, Vol 16, No 4, Jul/Aug 70, pp 480-483

Abstract: The effect of laser radiation on skin electrical conductivity was studied in hamsters. Laser rays ($\lambda \approx 10,000 \text{ \AA}$; impulse energy, 250 j) were focused on an abdominal skin area of 2 mm^2 . After irradiation, one irradiated and one nonirradiated piece of skin were excised, attached to platinum electrodes, and placed in a chamber with constant humidity and temperature. Electroconductivity of skin tissues was determined within the 10^2 - 10^5 Hz range. Tissue specific resistance, dielectric constant, and skin impedance were determined 1 hour and 1, 3, 7, and 14 days after irradiation. The greatest shifts in these parameters developed within 24 hours after irradiation. The shifts were found to be reversible however, and within 2 weeks the skin tissues regained their preradiation condition. Simultaneous histomorphological investigations established that the deepest injuries inflicted by the rays were in the radiation zone; where coagulation necrosis was indicated. A connection between the shifts in skin electric parameters and the degree of injury caused by the radiation is indicated.

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USSR

UDC 612.822.3.08

DAN'KO, S. G. and KURCHAVYY, G. G., Laboratory of Nerve Cell Physiology,
Institute of Evolutionary Physiology and Biochemistry imeni Sechenov, Academy
of Sciences USSR, Leningrad

"A Transistorized Amplifier for Microelectrode Recordings with Greater
Potential Applicability"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8,
Aug 73, pp 1293-1295

Abstract: A transistorized, two-channel amplifier for microelectrodes is
described which is more universally applicable, has a high input resistance
and a low current through the object and allows correction for linear dis-
tortion of input circuits and compensation for the capacitance between the
electrodes and the bond resistance. Differential input, low baseline drift,
adjustable coefficient of amplification and transmission band and low noise
are other features. The division of function between separate units is said
to permit simplified construction and stabilization of properties during use.

1/1

- 24 -

USSR

UDC: 612.811

KURCHAVYY, G. G., DAN'KO, S. G., ZUBKOV, A. A., KAMINSKIY, Yu. L., Laboratory of Nerve Cell Physiology of the Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad; Department of Electronic Medical Equipment of the Leningrad "Order of Lenin" Electrical Engineering Institute imeni V. I. Ul'yanov (Lenin)

"A Method of Measuring the Impedance of the Membrane of Motoneurons During Synaptic Actions"

Leningrad, Fiziologicheskiy Zhurnal SSSR, Vol 58, No 8, Aug 72, pp 1309-1312

Abstract: The paper demonstrates the feasibility of separating the post-synaptic potential and the signal induced by variation of the conductivity of the motoneuron membrane. A simplified block diagram of the installation used by the authors to measure curves of transient impedance of the motoneuron membrane is shown in the figure. The object to be studied is connected in the arm of a bridge circuit fed by sinusoidal alternating current. The signals induced in the measurement diagonal of

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USSR

KURCHAVYY, G. G. et al., Fiziologicheskiy Zhurnal, Vol 58, No 8, Aug 72, pp 1309-1312

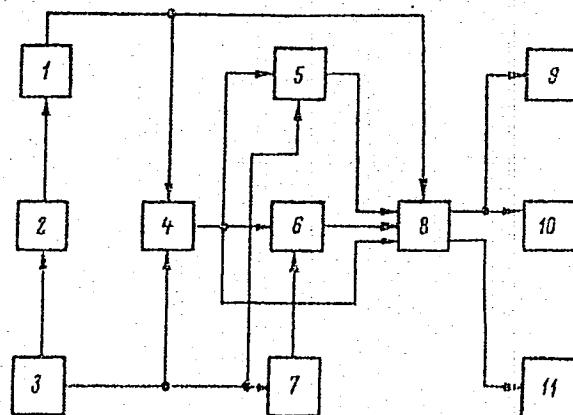
the bridge during stimulation of motoneurons are sent through the phase-sensing detector and then averaged, the sequence of stimuli impinging on the cell being incoherent with the reference current. The use of two phase detectors enables measurement of the cophasal and quadrature components of the transient impedance. Accumulation is used to achieve a usable signal-to-noise ratio. The operation of the synchronization module is described, and errors are analyzed. The maximum relative error of linear interpolation is no more than 5%.

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USSR

KURCHAVYY, G. G. et al., Fiziologicheskii Zhurnal, Vol 58, No 8, Aug 72, pp 1309-1312



1--stimulator; 2--synchronization module; 3--audio oscillator; 4--bridge measurement circuit; 5, 6--phase detectors; 7--phase shifter; 8--"UM 1KKh" digital computer; 9--oscilloscope; 10--chart recorder; 11--printout

3/3

USSR

UDC 621.313.12.043+045:537.312.62.001.24

DAN'KO, V. G.

"Problems of Calculation and Structural Design of a Model Generator with a Superconducting Excitation Winding"

V sb. Vopr. primeneniya sverkh nizh. temperatur v elektrotekhn. (Problems of Using Superlow Temperatures in Electrical Engineering -- collection of works), Leningrad, Nauka, 1971, pp 43-55 (from RZh-Elektrotekhnika i energetika, No 4, Apr 72, Abstract No 4118)

Translation: A description is presented for a model generator with a superconducting rotor made of nonmagnetic materials and a stator which operates at room temperature. Formulas are presented for calculating the rotor. There are 4 illustrations and an 11-entry bibliography.

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USSR

UDC 631.547

DANKO, V. I., Chernigovsk Regional Agricultural Experimental Station

"The Effectiveness of Chlorocholine Chloride on the Seed of Winter Wheat in the Woodland of the Ukraine"

Moscow, Khimiya v Selskom Khozyaystve, Vol 9, No 3, 1971, pp 58-59

Abstract: The increased use of nitrogen fertilizer enhances the danger of beating down of the grain crops. This was observed with wheat in the Ukrainian Woodland, even though only moderate nitrogen doses were used. Chlorocholine chloride was studied in 1967-1968 in different soils. The effect of this material worked into the soil on growth and crop of winter wheat was almost the same as when plants had been sprayed. Spraying at a dose of 4 kg/hectare prevented the beating down of the wheat, the grain crop was higher by 36.3% in comparison with the control, in which about 45-50% of the plants were beaten down. It was found that for one and the same sort of crop, the use of chlorocholine chloride must be differentiated for various soils.

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USSR

UDC 621.762.2

MEL'NIK, V. G., FAL'KO, V. T., and DAN'KOVA, L. D., Shostka Branch of All-Union Scientific Research and Planning Institute of Chemical and Photographic Industry

"Method of Making Magnetic Powder"

USSR Authors' Certificate No 270712, Cl. 12 n, 49/02, (C 01 g), filed 12 Apr 69, published 17 Aug 70 (From RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G407P by S. Krivonosova)

Translation: A method is suggested for making magnetic powder by consecutive treatment of iron sulfate with alkali and ammonium nitrate with subsequent rinsing off of the resultant precipitate, filtration, drying, and roasting. In order to increase product quality, the process is carried on in the presence of a water-soluble nickel salt, for example nickel sulfate, chloride, or nitrate. The nickel salt is introduced in the amount of 4-7%.

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345
6.22.68

6-73

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III-6. GROWTH OF DISLOCATIONLESS SINGLE CRYSTALS OF SILICON

(Article by N. I. Bistatun, L. Ye. Beresenko, Yu. V. Danilovskiy, Zaporozh'ye; Novosibirsk, III Sbornik po Probleмам Kozla i Shukera Poluprovodnikov, Kizel'ov i Plend, Kuznetsov, 17-17 June, 1972, p. 30)

The conditions of obtaining dislocationless single crystals oriented in the [111], [110], [100], [112] and [123] directions and crystals of four-sector structure are discussed. The magnitude of the growth angle and the drawing rate of single crystals without dislocations are founded experimentally.

The description of the forms of the crystallization front and the external structure of the dislocationless single crystals is presented. It is demonstrated that the dislocationless single crystals always grow with exit of the (111) face to the interface. This leads to the complex form of interface.

The growth conditions of dislocationless single crystals at high rates insuring dispersion of the specific resistance with respect to the volume of the bar less than 10 percent are discussed. The effect of the exit of the (111) face on the scattering of the specific resistance with respect to the transverse cross section and with respect to the volume of the bar is demonstrated.

A study is made of the conditions insuring prevention of the dislocationless single crystal from damage by dislocation slip lines on separation of it from the melt and also leading to the formation of macrofissures of the dislocations on transition from the dislocationless section to the section with dislocations.

Data are presented on the effect of the orientation of the single crystal on the capture of oxygen from the melt and the magnitude of the lifetime of the minority charge carriers.

USSR

UDC 669.71.053.2(088.8)

GROSHEV, G. L., DANOV, S. M., YURLOVA, Z. I., SHILOVA, A. V., CHAUSOVSKIY, D. A., MOVSHEVICH, Yu. M., and SHAROV, A. V.

"Method of Producing Anhydrous Aluminum Chloride"

USSR Author's Certificate No 268397, Filed 8/04/68, Published 13/07/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G132 P)

Translation: A method is presented for producing anhydrous $AlCl_3$ from Na tetrachloroaluminate at elevated temperatures. To simplify the process, the Na tetrachloroaluminate is treated with gaseous NH_3 , the ammoniates formed are evaporated and condensed, and metallic Al is added to them with subsequent heating to 800-850° in a medium of an inert gas such as N_2 .

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- 9 -

1/2 007 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--TEMPERATURE PROFILES AND MOISTURE CONTENT OF SALT SOLUTIONS DURING
THEIR DEHYDRATION IN AN ALL PURPOSE FLUIDIZED BED APPARATUS -U-
AUTHOR-(03)-SOKOLOVSKIY, A.A., GROSHEV, G.L., DANOV, S.M.
COUNTRY OF INFO--USSR
SOURCE--KHIM. NEFT. MASHINOSIR, 1970, (3), 12-14
DATE PUBLISHED--70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, CHEMISTRY
TOPIC TAGS--AQUEOUS SOLUTION, FLUIDIZED BED, AMMONIUM SULFATE,
DEHYDRATION, DRYING OVEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1451 STEP NO--UR/0314/70/000/003/0012/0014
CIRC ACCESSION NO--AP0109511
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109511

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPRAY ATOMIZATION (TOP) AND FLUIDIZATION (BOTTOM) DRYING STUDIES WERE CONDUCTED ON (NH SUB4) SUB2 SO SUB4 CONTG. SMALLER THAN 40PERCENT WATER AT HEAT TRANSFER MEDIA (GAS) TEMPS., 320-760DEGREES AT THE NOZZLES TEMP., AND 18-22 M-SEC FLOWS. TEMP. PROFILES WERE DETD. FOR BEDS SMALLER THAN 320 MM DEEP AND THE TOP AND BOTTOM JET ENVELOPES BOTH IN RADIAL AND LONGITUDINAL DIRECTIONS; AN EQUATION IS GIVEN FOR CALCG. JET ENVELOPE TEMPS. SHARP TEMP. DROPS WERE OBSD. IN THE JET ENVELOPE; THE TEMPS. WERE NEARLY CONST. AT 100 MM FROM THE NOZZLES. (NH SUB4) SUB2 SO SUB4 WAS DRIED TO MOISTURE CONTENTS OF 0.15 0.52PERCENT WITH EXIT GASES CONTG. 16-30PERCENT MOISTURE. THE DRYING EFFICIENCY WAS CONTROLLED BY TOP CONDITIONS AND ONLY IN THE EVAPN. AND GRANULATION OF THERMALLY UNSTABLE AND NONHYGROSCOPIC MATERIALS WERE THE BOTTOM CONDITIONS IMPORTANT.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--ALUMINUM CHLORIDE MONOAMMONIATE AS A CATALYST FOR THE
HYDROCHLORINATION OF ALUMINUM IN A MELT -U-
AUTHOR-(04)-YURLOVA, Z.I., GROSHEV, G.L., DANDV, S.M., SHILOVA, A.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 894-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALUMINUM CHLORIDE, CATALYST, CHLORINATION, ALUMINUM, CATALYST
ACTIVITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0949 STEP NO--UR/0080/70/043/004/0894/0896
CIRC ACCESSION NO--AP0131534
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131534

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FEASIBILITY OF INCREASING THE SPEED OF HYDROCHLORINATION OF AL IN A MELT BY USING THE MONOAMMONIATE OF ALCL SUB3 AS A HCL ACCEPTOR WAS STUDIED. THE CATALYTIC ACTIVITY OF THE MONOAMMONIATE WAS ATTRIBUTED TO THE FORMATION OF A COMPLEX WITH HCL CONTG. UP TO 3 MOLES OF HCL PER MOLE OF MONOAMMONIATE.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REACTION OF CYANOGEN CHLORIDE WITH ALCOHOLS IN ETHER SOLUTIONS OF
LEWIS ACIDS -U-
AUTHOR--(02)--CANGVA, B.V., BODRIKOV, I.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. OSHCHEST. 1970, 15(2), 235-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CYANOGEN CHLORIDE, ALCOHOL, ESTER, CYCLOHEXENE, PROPANOL,
CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1192 STEP NO--UR/0063/70/015/002/0235/0236
CIRC ACCESSION NO--AP0128610
UNCLASSIFIED

2/2 OCB UNCLASSIFIED PROCESSING DATE--20NOV70
 CIRC ACCESSION NO--AP0128610
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 1 MOLE ET SUB2 O AND 0.4-2.0
 MOLE ROH WAS ADDED AT NEGATIVE 15DEGREES 0.12-0.4 MOLE ALCL SUB3 AND
 0.2-0.4 MOLE CLCN INTRODUCED THROUGH A BUBBLER SMALLER THAN NEGATIVE
 8DEGREES, AND THE MIXT. WAS WARMED TO ROOM TEMP. AND KEPT. 4-5 HR TO
 YIELD OC(OR) SUB2: R EQUALS PR, B. 166DEGREES, N PRIME20 SUBD 1.4110, D
 PRIME20 C.9420; AMYL (77PERCENT), B SUB3 102DEGREES, 1.4220, 0.9088; PH,
 M. 78DEGREES; AND P, MEC SUB6 H SUB4, M. 109DEGREES. THE DI, PR ESTER WAS
 ALSO FORMED IN LOW YIELD INCHLOROCYANATION OF METHYLCYCLOHEXENE AND ME
 SUB2 C:CME SUB2 IN PROH WITH ALCL SUB3 CATALYST. THE YIELDS OF THE
 ABOVE REACTIONS WERE 15-75PERCENT. FACILITY: GOR'K. POLITEKH.
 INST. IM. ZHDANOVA, GORKI, USSR.

UNCLASSIFIED

Acc. Nr:

AP0053763

Abstracting Service:

CHEMICAL ABST.

5-70

Ref. Code:

UR0366

110863c Chemistry of cyanogen halides. III. Reactions of cyanogen bromide and iodide in alcoholic solutions of Lewis acids. Danova, B. V.; Bodrikov, I. V. (Gor'k. Politekh. Inst., Gorki, USSR). *Zh. Org. Khim.* 1970, 6(2), 260-2 (Russ). In the presence of 0.21:1 iso-PrOH-ZnCl₂ mixt., 1-methyl-1-cyclohexene (I) does not react with BrCN or ICN. In this case only H₂NCO₂Pr-iso (II) is formed. In the presence of 2.2:1 iso-PrOH-ZnCl₂ the reaction of I with BrCN gave 28% II, 18.5% iso-Pr N-(1-methylcyclohexyl)carbamate, and 14% 1-methyl-1-cyclohexanol.

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REEL/FRAME
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AA0052549

DAVDOVICH, A. V.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

243795 FLAT GLASS CUTTING EQUIPMENT consists

2/70

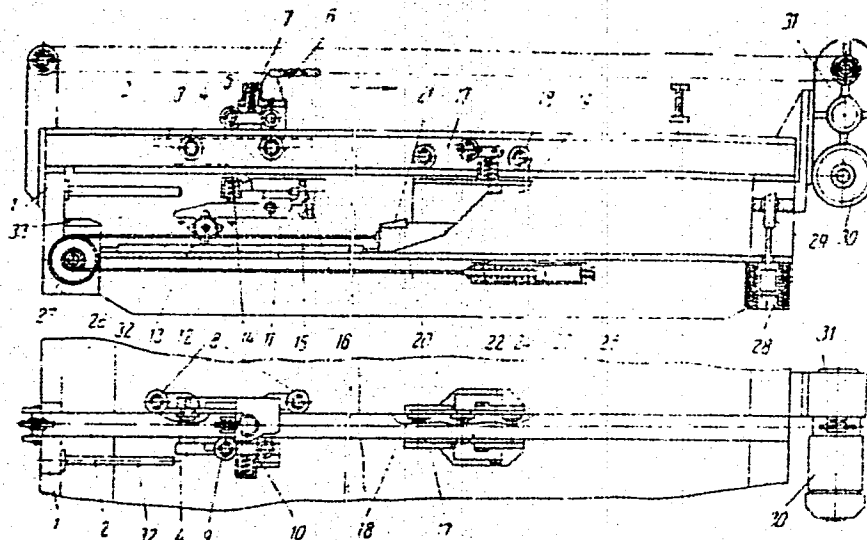
of a table, carrier with cutting tool, and drive mechanism for the tool. The aim of this invention is to increase the working life of the cutter and this is done with the help of a means of support over the working surface of the table. The diagrams show the lateral and plan views of the cutting assembly with the side brackets (1) supporting the guide rail (2) on which the rollers run which hold the cutting head (3). These rollers are both horizontal (4) and vertical (8) and there is adequate provision of springing (7 and 14) to cater for movements and pressures on the cutting tool (12). A second carrier travels along the guide rail on the rollers (18). This incorporates a stop device (21) which abuts against the side of the flat piece of glass during the cutting motion and prevents the glass from moving. The method of setting the cutter and its operation are included.

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AA0052549



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19821209

AA0052549

20.3.67. as 1142046/29-33, PROKSHIN, S.S. et al.
S. Ordzhonikidze Ufim Aviation Inst. (3.10.69)
Bul. 17/14.5.69. Class 32a, Int. Cl. C 03b. |

int
Prokshin, S. S.; Gellerman, V. G.; Danovich, A. V.; Getsonok,
A. L.

Ufimskiy Aviatsionnyy Institut im. Sergo Ordzhonikidze

3/3

19821210

USSR

UDC: 621.385.632

DANOVICH, I. A., KASATKIN, L. V., LEBEDEV, A. V., PETRANGOVSKIY, A. N.

"A Type O Traveling Wave Tube With Reversible Shielded Magnetic Focusing System"

USSR Author's Certificate No 256882, filed 23 Nov 67, published 1 Sep 70
(from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 5A176P)

Translation: A type O traveling wave tube is proposed with reversible shielded magnetic focusing system. The focusing system has flat pole pieces made of a magnetically soft material located at points of reverses in the magnetic focusing field. As a distinguishing feature of the patent, the magnetic field levels and high azimuthal homogeneity of the focusing field which are required for shaping the electron beam are ensured by varying the pitch of the reversible magnetic focusing system, decreasing the distance between adjacent pole pieces and the axial dimensions of the corresponding magnets in the end regions of the system and at points where energy is coupled out.

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USSR

UDC 621.385.6

DANOVICH, I.A.

"To A Calculation Of The Magnetic Systems Of Electron Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 1, pp 86-96 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A151)

Translation: An analysis of the most common magnetic systems of Type C microwave devices and the properties employed in their magnetic materials made it possible to draw the conclusion that the individual magnets of these systems must operate on direct magnetic return. The magnetic field in the area of the magnets and beyond them can be determined at the same time by means of the solution of a Laplace equation or of a scalar magnetic potential. Conditions are derived which it is necessary to satisfy during modeling of a magnetic system in an electrolytic bath. As an example, an approximate analytical calculation for a shielded periodic magnetic system is performed. 6 ill. 10 ref. G.B.

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USSR

UDC 621.385.6

DANOVICH, I. A., MITUS, A. F.

"Calculation and Simulation of Periodic Magnetic Systems of Microwave Devices.
Part II. Calculation of Shielded Magnetic Periodic Focusing Systems"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 969-976

Abstract: Results are presented from an experimental investigation of the accuracy of the analytical calculations of shielded periodic magnetic systems comprising axially magnetized ring magnets. The primary sources of error are defined from analysis of the assumptions made when calculating the MPFS [magnetic periodic focusing systems], and the possibility of eliminating these sources of error is investigated. Graphs are presented which permit simplification of the calculation of magnetic systems and improvement of the calculation accuracy. The relations were obtained for calculating a magnetic periodic focusing system with shunting rings to create a nonsinusoidal axial induction distribution. These systems and the MPFS with a sinusoidal field are compared with respect to the maximum attainable induction levels on their axis. The discussion includes calculation of MPFS with sinusoidal and nonsinusoidal fields.

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Vacuum Tubes

USSR

UDC 621.385.6

DANOVICH, I. A., MITUS, A. F.

"Calculation and Simulation of Periodic Magnetic Systems of Microwave Devices.
Part I. Simulation of Magnetic Systems"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 959-968

Abstract: A study was made of a simulation procedure for magnetic systems based on stabilized axially magnetized magnets with $\mu_r \approx 1$ in an electrolytic bath.

An experimental check is made of the results of simulating shielded periodic and reversible magnetic systems. Examples are presented for using simulation to solve some standard problems arising when designing magnetic periodic focusing systems. The discussion includes a description of the electrolytic bath and measuring circuit, the method of determining the similarity coefficients and the simulation procedure, simulation of the field of the MPFS [magnetic periodic focusing system] cell, simulation of the field distribution along the MPFS and simulation of magnetic systems with a reversible field. Comparison of the results of simulating magnetic systems with experimental and calculation data leads to the following conclusions: 1) the investigated simulation procedure provides sufficient accuracy for practical solution of the problems arising when designing periodic and reversible systems; 2) it is most expedient to use simulation to take into account the boundary effects, to select

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USSR

DANOVICH, I. A., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 959-968

the magnet dimensions and parameters insuring a given induction distribution along the system, to determine the effect of the gun shields or other ferro-magnetic elements on the field distribution in the MPFS and also for planning and designing reversible systems.

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USSR

UDC 616-099-516.9

~~DANOVSKIY, L. V.~~, and RADBIL', O. S., Chair of Therapy No 2, Kazan' State Institute for Advanced Training of Physicians imeni V. I. Lenin

"Clinic and Therapy of Acute Intoxications"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 1, Jan/Feb 70, pp 35-37

Abstract: A report of case histories of several types of poisoning: methanol, ethanol, vinegar, antabuse (Teturam), and several drugs taken in excessive doses and in combination with other toxic agents. Treatment consisted of stomach pumping, IV and IM glucose injections, oxygen therapy and various combinations of vitamins and drugs tailored to the symptoms of individual cases.

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1/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ON ONE ASPECT OF SCIENTIFIC INFORMATION ANALYSIS; CONTRADICTIONS
AND TAUTOLOGIES IN THE LANGUAGE OF PSYCHOPHYSIOLOGICAL PROBLEMS -U-

AUTHOR--DANOYAN, Y.B.

COUNTRY OF INFO--USSR

SOURCE--NAUCHNO TEKHNICHESKAYA INFORMATSIYA, 1970, SERIES 2, NR 1, PP
22-23

DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL
SCIENCES

TOPIC TAGS--SCIENTIFIC INFORMATION, ERROR ANALYSIS, PSYCHOPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0200

STEP NO--UR/0447/70/000/001/0022/0023

CIRC ACCESSION NO--AP0119196

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119196

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SEMANTIC EVALUATION OF STATEMENTS OF PSYCHOPHYSIOLOGICAL FACTS IS PROPOSED. CONTRADICTIONS AND TAUTOLOGIES ARE ADOPTED AS EVALUATION CRITERIA. EXAMPLES OF THE INTERPRETATION OF CONTRADICTIONS AND TAUTOLOGIES IN THE LANGUAGE OF PSYCHOPHYSIOLOGY ARE CONSIDERED.

UNCLASSIFIED

USSR

BAGDOYEV, A. G.; DANOYAN, Z. N. (Yerevan)

"Studies of the Motion of the Mean in the Neighborhood of the Point of Contact of Shock Waves in Linear and Nonlinear Formulations"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki; November-December, 1972; pp 1512-29

ABSTRACT: The authors study the problem of determining the solution of an arbitrary linear system of equations of a hyperbolic type with three (t, x, y) and four (t, x, y, z) independent variables in the neighborhood of the point (or line) of contact of a wave of a given type with a point or diffraction wave. The solution is found by means of hypergeometric functions. Later on, simplified nonlinear equations describing the motion of the mean in the given wave region are derived and their solution is obtained for the planar problem. As an example, nonlinear equations in the vicinity of a wave in magnetogas dynamics are derived.

The article includes 53 equations and three figures. There are 30 references.

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USSR

UDC 621.382.C02

AMIRKHANOVA, I.B., GVERDTSITELI, I.G., GULDASHVILI, A.I., GOLUBOV, V.B.,
DANSKIDZE, E.M., ZASLAVSKIY, S.A., KARPEIKO, T.T.

"Doping Of Silicon By Ion Bombardment"

V sb. Radiats. fiz. nemet kristallov (Radiation Physics Of Nonmetallic
Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka." 1971, pp
111-122 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971,
Abstract No 103436)

Translation: Doping of n-silicon with a resistivity of 0.035--150 ohm.cm
was conducted by polyenergetic beams of boron ions with a current density of
10 ma.cm⁻², and maximum energy of 300 plus or minus 0.150 kev with doses of
1 . 10¹⁷ -- 1 . 10¹⁷ cm⁻². The uniformity of doping was attained by scanning
and amounted to 10 percent. Annealing of the doped specimens was conducted
in a vacuum at a temperature of 500--700° C during the course of 30 min. The
method of studying the specimens and the results obtained are described. 7 ill.
8 ref. I.M.

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- 160 -

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--USE OF UREA TO DYE BLUE COTTON FIBERS -U-
AUTHOR--(04)-DANSHINA, M.I., DOKIN, K.A., SLADKOPEVTSEVA, G.E., SHUMARINA,
A.V. D
COUNTRY OF INFO--USSR
SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(3), 73
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--UREA, DYE, NATURAL FIBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1262 STEP NO--UR/0342/76/030/003/0073/0073
CIRC ACCESSION NO--AP0128678
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128678

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UREA (I) CAN BE USED AS AN
ADDITIVE (INSTEAD OF (NH SUB4) SUB2 SO SUB4) DURING BATCH AND CONTINUOUS
DYEING OF COTTON FIBERS. ADDN. OF 2-3 G-L. I TO THE DYEING MIXT.
IMPROVED THE SELECTIVITY AND REDUCED THE CONSUMPTION OF DYES BY SIMILAR
TO 10PERCENT. FACILITY: IVANOV. MELANZHEVYI KOMB. IM. FRULOVA,
IVANOV, USSR.

UNCLASSIFIED

DANTSIG, N. M.

JPRS 55320
1 MAR 72

UDC: 612.014.44+616.165

BIOLOGICAL ACTION AND HYGIENIC SIGNIFICANCE OF LIGHT

(Article by N.M. Dantsig; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 25-30)

Light, as an element in man's environment, is one of the main factors in a most important medicobiological problem of our times: the organism and the environment.

An outstanding natural scientist, the founder of the teaching on the biosphere, V.I. Vernadsky, wrote that "around us, within us, everywhere, without interruption, always changing, coinciding, and encountering one another, there are radiations with different wave lengths, ranging from waves whose length is measured in ten-millionths of a millimeter to long ones measured in kilometers."

Within this range there are also the radiations of the optical segment of the radiant energy spectrum: solar light, sky, and artificial sources of light -- ultraviolet, visible, and infrared rays.

At present, at a time of scientific technological progress, sources of radiant energy are used in the most diverse areas. For this reason, man is exposed to natural and artificial sources of radiant energy with the most diverse spectral characteristics and an extremely wide range of intensity from 100,000 lux or more in the daytime in direct sunlight to 0.2 lux at night in moonlight.

At the same time, unfortunately we know very little about the role of radiant energy, and in particular of light, in biology of the human organism.

At present there is no doubt that all parts of the optical spectrum have played their part in evolution of living organisms, including man. Sunlight and the light from the sky as one of the most important environmental

V.I. Vernadsky, Biosphere, Ocherki biyosfery i Voprosy (The Biosphere, First and Second Essays), Leningrad, Scientific Technical Publishing House, Leningrad, 1929.

Devices

USSR

UDC: 628.979:612.014.44

D
DANTSIG, N. M.

"Basic Instructions on Using Erythemat Continuous-Action Irradiation Units"

Svetotekhnika (Lighting Engineering), 1970, No 2, pp 23-25 (from RZh-Elektro-
tekhnika i Energetika, No 6, Jun 70, Abstract No 6V275)

Translation: Erythemat continuous-action irradiation units are installed directly in enterprises, schools, hospitals, and other places where many people congregate. Erythemat lamps are installed in combination with incandescent lamps or conventional fluorescent tubes. In this case there should be a different hook-up for the erythemat lamps and the lighting. The irradiation devices may be uniformly distributed or localized. The regions of application of the irradiation units, irradiance (ratio of incident erythemat flux to the irradiated surface in mer/m^2) and doses (product of the irradiation dose by the duration of exposure in $\text{mer}/\text{hr}/\text{m}^2$) are stated by the Ministry of Public Health of the USSR. The calculation of erythemat irradiation units is analogous to calculation of lighting installations from the intensity of the radiant flux (point method) and by methods of using the flux and specific power; standards are set for the erythemat dose ($10-60 \text{ mer}\cdot\text{hr}/\text{m}^2$).

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USSR

UDC 669.71.022

PASHKEVICH, L. A., DANTSIG, S. YA.

"Thermography As Applied to Nephelines"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of the Aluminum, Magnesium and Electrode Industry), 1970, No 73, pp 5-21 (from RZh-Metallurgiya, No 7, Jul 71, Abstract No 7G198)

Translation: The results of thermographic and mineralogical analysis of rock-forming and certain secondary and auxiliary minerals typical of nephelines are discussed. The heating curves of cancrinite carbonate, sodalite, aegirite-augite, and titanium-augite are presented. The phase variations recorded on the thermograms of nephelines from certain deposits are decoded. The conclusion of the expediency of applying the method of thermography when studying the composition of nephelines in addition to crystal-optical x-ray micrographic and chemical methods of analysis is drawn. By the method of thermography it is possible in a short time to obtain the primary characteristic of nepheline; to establish the degree of its variation, detect the ore minerals, and to determine the temperature intervals of occurrence of the liquid phases in low-melting minerals. There are 22 illustrations and 1 table.
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1/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--TWO LAYER ROOFING MATERIAL -U-

AUTHOR--(05)-DANTSIN, M.I., ARONOV, KH.I., CHERNIN, G.B., BLYAKHER, M.A.,
SHTOFENMAKHER, B.M.
COUNTRY OF INFO--USSR

D

SOURCE--U.S.S.R. 260,880

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, BIOLOGICAL
AND MEDICAL SCIENCES
TOPIC TAGS--POLYVINYL CHLORIDE, CONSTRUCTION MATERIAL, INSULATING
MATERIAL, MICROBIAL DEGRADATION, AMMONIUM COMPOUND, FLUORIDE, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0987

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0119856

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0119856

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ROOFING MATERIAL CONSISTS OF LINOLEUM WITH A POLY(VINYL CHLORIDE) FACING LAYER ON A HEAT AND SOUND INSULATING BASE. TO INCREASE THE DURABILITY, THE HEAT AND SOUND INSULATING PROPERTIES, AND THE DECAY RESISTANCE OF THE LINOLEUM, A COMPN. WAS PREPD. CONSISTING OF 60-70PERCENT REPROCESSED WOOL FIBERS, 30-40PERCENT SYNTHETIC FIBERS, AND 2PERCENT (NH SUB4) SUB2 SIF SUB6 BASED ON THE FIBER WT. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

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UDC: 517.95.32

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"Concerning a Nonlinear Spatial Problem With Free Boundary"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A: Fizyko-Tekhnichni ta Matematychni Nauky, No 2, Feb 73, pp 119-123

Abstract: In the problem it is required to determine the infinite cylindrical region D_S of arbitrary cross section extending downward and bounded from above by an unknown surface S on the basis of the conditions: 1) a solution exists in D_S for the equation $(c^{00}u_x)_x + (c^{00}u_y)_y + (c^{00}u_z)_z = 0$, $\omega = \text{const} > 0$, which vanishes as $z \rightarrow -\infty$; 2) the heat transfer condition $u_n + \omega_1 u = 0$, $\omega_1 = \text{const} > 0$ is satisfied on the lateral surface AD, AS ; 3) the two conditions $u = 1$, $|\text{grad } u| = Q$ are satisfied on S , where $Q(x, y, z)$ is a given function. This problem arises in investigation of the three-dimensional quasi-stationary Stefan problem, where $Q(x, y, z)$ describes the heat flux from the side of the liquid phase. The problem is reduced to a variational problem for some integral functional with variable region of integration, and a theorem of uniqueness

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is proved on this basis: if $Q_z(x,y,z)$ is non-negative, then in the class of functions which satisfies the condition that $u_z(x,y,z)$ is positive the problem can have no more than a single solution. A description is given of the corresponding Ritz method, the first approximations are calculated, and approximation formulas are indicated for the free boundary.

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UDC 519.3.517.95.32

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"A Generalized Morse Theory for One Class of Functionals"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A --
Fizyko-Tekhnichni ta Matematychni Nauky, No 1, Jan 71, pp 16-19

Abstract: The article considers the Hilbert space $H_2^{(n)}(G_\epsilon)$ of
functions holomorphic in the ring $G_\epsilon: \epsilon < |\tau| < 1$ and the
nonlinear infinite-dimensional manifold $M_\epsilon \subset H_2^{(n)}(G_\epsilon)$.
 $Q^2(z) \equiv Q^2(x, y)$ is a certain positive, fairly smooth
function on the plane $z = x + iy$. The nonlinear functional

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$$I_1(z, \varrho) = -\frac{2\pi}{\ln \varrho} + \iint_{G_\varrho} Q^2(z) \left| \frac{dz(\tau)}{d\tau} \right|^2 d\xi d\eta \quad (1)$$

defined on M_ϱ is studied. The purpose of the article is to study global properties of the set of all critical points of functional (1) on the manifold M_ϱ , $0 < \varrho < 1$.

Let N_ϱ be the aggregate of all critical points of functional (1) on the manifold M_ϱ , given an arbitrary but fixed

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$\epsilon \in (0, 1)$. For each positive $R < +\infty$, $N_\epsilon(R)$ designates
the portion of set N_ϵ situated inside the sphere $\|z\|_{H_2^{(1)}(G_\epsilon)} \leq R$. If the function $Q^2(x, y)$ and its first derivative are continuous on the entire plane $z = x + iy$ and the condition

$$Q^2(x, y) \geq Q_0^2 > 0, \quad Q_0 = \text{const},$$

is satisfied, the set $N_\epsilon(R)$ is compact in the sense of the metric of the Hilbert space $H_2^{(1)}(G_\epsilon)$ for each fixed R

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$< \infty$, and each bounded portion of the set $\hat{N}_\varepsilon \subset M$ is compact in this sense.

Functional (1) does not fit into the abstract Smale-Palais scheme (Bull. Amer. Math. Soc., 70, 165 (1964); Ann. Math., 80, 392 (1964)), since it does not satisfy their "condition C." However, it does satisfy "condition A." Therefore, the author constructs a generalized Morse theory on the basis of the calculus of variations. Let the functional $J : M \rightarrow \mathbb{R}$ belong to the class $C^2(M)$. Each nondegenerate point thereof is isolated. If the functional J satisfies condition B (i.e., each bounded portion of the set of critical points of the functional on M is compact in the sense of the space $H \supset M$) and all its critical points are nondegenerate, each bounded portion of the set of all its critical points is finite.

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Let the functional $J : M \rightarrow R$ belong to the class $C^2(M)$ and satisfy condition B and condition D (i. e., the functional belongs to class $C^2(M)$ and the self-adjoint operator $A : T_x M \rightarrow T_x M$ is completely continuous) and let all its critical points be nondegenerate and have a finite Morse index. These conditions are the basis for proving a series of generalized Morse inequalities.

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